

Trend Study 17-35-97

Study site name: Hobble Creek Golf Course.

Vegetation type: Gambel Oakbrush.

Compass bearing: frequency baseline 348 degrees magnetic.

Frequency belt placement: line 1 (11, 34, 59, 71 & 95 ft).

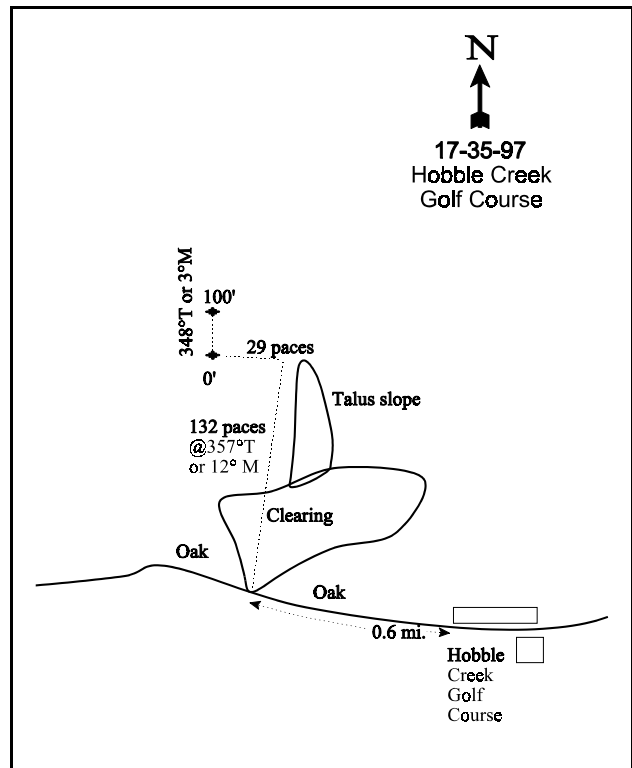
LOCATION DESCRIPTION

From Hobble Creek Golf Course Club House, proceed west toward Springville for 0.60 miles until you come to a clearing in the oakbrush to the north. From the beginning of the clearing, walk 132 paces at 357 degrees true in a northeasterly direction through the clearing and up a talus draw. Once at the top of the talus draw, the 0-foot baseline stake is located 29 paces away at an azimuth of 263 degrees true. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height. A red browse tag, number 3981, is attached to the 0-foot baseline stake.



Map Name: Springville

Township 7S, Range 4E, Section 31



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4445634 N 455751 E

DISCUSSION

Hobble Creek Golf Course - Trend Study No. 17-35

***SUSPENDED - This site was suspended in 2002. The site is poor and contains little winter browse forage for big game.

This trend study is located on a south facing slope, immediately north of Hobble Creek Golf Course. The slope is steep (65-70%) and the site is very dry and within the limits of severe winter range. Elevation is approximately 5,200 feet. In 1983, heavy and intense past deer use was evidenced by the density of pellet groups, the level of use on key browse species, the presence of antler drops, and the finding of at least five winter-killed deer in the immediate vicinity. By 1997, there is very little wildlife use observable. The range type is sparse mixed mountain brush characterized by scattered clumps of low growing Gambel oak, true mountain mahogany, and Saskatoon serviceberry. However, the bulk of the soil surface is occupied by talus, rimrock, and grass-forb openings.

The soil is shallow and exposed bare soil is almost nonexistent. Large areas are occupied by talus slopes and much of the remaining surface is in a near talus condition. Variable sized angular rocks are the dominant feature on this site. Drainage is very fast and erosion is a serious problem. Vegetative and litter cover are both sparse.

Shrub density, although very scattered, includes three species; service berry, true mountain mahogany, and Gambel oak. There is also occasional individuals of mountain big sagebrush and the slightly more abundant broom snakeweed. Key species designation should probably include all three of the principal shrubs. Gambel oakbrush density was estimated at 7,900 stems/acre in 1997. The density is higher than previously reported because density measurements were made in the same place the vegetative measurements were made. Also, stems for each plant were counted rather than clumps that may have been counted in the past. Saskatoon serviceberry density was estimated at 180 plants/acre in 1997. Due to the much larger sample used in 1997, this density is a much more representative estimate than the 2,099 plants/acre estimated in 1989. These plants were heavily browsed in 1983 and 1989, but showed only light utilization and good vigor in 1997. The plants are relatively short, averaging only 28 inches in height in 1997. This would indicate what poor potential the site has. True mountain mahogany was not sampled in 1997. This was due to the increased sample size which is more representative of the area. Broom snakeweed shows a slight increase in density while height and crown measurements have remained nearly the same.

Herbaceous composition is typical of many other depleted, poor condition sites on this unit. Among perennial grasses, bulbous bluegrass is dominant, providing 54% of the grass cover, followed by smaller amounts of bluebunch wheatgrass. In 1997, smooth brome was encountered on the site. Annual grasses are very abundant. Cheatgrass brome, rattlesnake brome, and sixweeks fescue all occur.

Forbs occur infrequently and are generally low or moderate in palatability. Northern bedstraw is most abundant followed by Louisiana sage, yellow salsify, and longleaf phlox. Also present are a myriad of annual forbs.

1983 APPARENT TREND ASSESSMENT

Most evidence suggests a declining range trend. Soil condition is poor and will likely not improve without some sort of intervening treatment. Vegetationally, low value grasses and forbs are becoming increasingly dominant. The key browse species are barely holding their own, or as in the case of serviceberry and to a lesser extent mountain mahogany, actually declining.

1989 TREND ASSESSMENT

Early drying grasses found on this site probably account for the differences found in the percent litter and vegetative cover between 1983 and 1989. The total ground cover is the same between years. Rock and pavement make up a significant 56% of the total, a slight increase since 1983. The three main browse species on this sparse mountain brush site appear to have improved vigor and less utilization than in 1983. From all signs, the area appears to receive moderate use by big game. Use is limited to winter and spring and cover is fair. The herbaceous component shows little change. Sandberg bluegrass was sampled on the site in 1989.

TREND ASSESSMENT

soil - stable (3)

browse - up slightly (4)

herbaceous understory - stable (3)

1997 TREND ASSESSMENT

Soil trend on this site is stable, but condition is very poor. There is very little soil on the surface and no erosion is apparent. Cover is dominated by rock and litter. Although density for the browse species may have changed since 1989, this is due to the improved sampling method and much larger sample size used in 1997 which is more reflective of the true densities of the browse. Browse species showed very little utilization this season and show good vigor. Lighter use is also apparent with almost no pellet groups being found on the site. The herbaceous understory composition remains similar to that sampled in previous years. One addition to the grass component in 1997 is smooth brome. The herbaceous understory trend is stable.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 17 , Study no: 35

| Type | Species | Nested Frequency | | | Quadrat Frequency | | | Average Cover % |
|-----------------------------|-------------------------|------------------|------------------|------------------|-------------------|-----|-----|-----------------|
| | | '83 | '89 | '97 | '83 | '89 | '97 | |
| G | Agropyron spicatum | _b 134 | _a 85 | _a 85 | 54 | 37 | 32 | 2.55 |
| G | Bromus brizaeformis (a) | - | - | 56 | - | - | 23 | .31 |
| G | Bromus inermis | _a - | _a - | _b 47 | - | - | 16 | .98 |
| G | Bromus tectorum (a) | - | - | 182 | - | - | 63 | 3.62 |
| G | Oryzopsis hymenoides | - | 7 | - | - | 3 | - | - |
| G | Poa bulbosa | _a 177 | _b 232 | _b 245 | 64 | 81 | 86 | 9.03 |
| G | Poa secunda | _a - | _b 76 | _a 7 | - | 33 | 3 | .31 |
| Total for Annual Grasses | | 0 | 0 | 238 | 0 | 0 | 86 | 3.93 |
| Total for Perennial Grasses | | 311 | 400 | 384 | 118 | 154 | 137 | 12.88 |
| Total for Grasses | | 311 | 400 | 622 | 118 | 154 | 223 | 16.81 |
| F | Alyssum alyssoides (a) | - | - | 10 | - | - | 5 | .02 |
| F | Allium spp. | - | - | 4 | - | - | 1 | .03 |
| F | Artemisia ludoviciana | _a 36 | _b 63 | _a 42 | 15 | 26 | 18 | .45 |
| F | Aster chilensis | 2 | 1 | 3 | 1 | 1 | 1 | .15 |

| T y p e | Species | Nested Frequency | | | Quadrat Frequency | | | Average Cover % |
|---------------------------|-----------------------|------------------|------------------|-----------------|-------------------|-----|-----|--------------------|
| | | '83 | '89 | '97 | '83 | '89 | '97 | '97 |
| F | Cirsium spp. | - | - | 3 | - | - | 1 | .00 |
| F | Cymopterus spp. | - | - | 1 | - | - | 1 | .15 |
| F | Eriogonum brevicaulis | - | 1 | 6 | - | 1 | 2 | .06 |
| F | Erigeron spp. | - | - | 2 | - | - | 2 | .01 |
| F | Galium aparine (a) | - | - | 55 | - | - | 22 | .27 |
| F | Lathyrus brachycalyx | _b 12 | _a - | _{ab} 3 | 4 | - | 1 | .15 |
| F | Lactuca serriola | _a - | _a 1 | _b 22 | - | 1 | 10 | .19 |
| F | Lomatium dissectum | 6 | 8 | - | 4 | 5 | - | - |
| F | Phlox longifolia | _a 3 | _{ab} 10 | _b 17 | 1 | 5 | 7 | .22 |
| F | Tragopogon dubius | 8 | 2 | 4 | 4 | 1 | 3 | .01 |
| F | Trifolium gymnocarpon | - | - | 8 | - | - | 3 | .01 |
| Total for Annual Forbs | | 0 | 0 | 65 | 0 | 0 | 27 | 0.29 |
| Total for Perennial Forbs | | 67 | 86 | 115 | 29 | 40 | 50 | 1.47 |
| Total for Forbs | | 67 | 86 | 180 | 29 | 40 | 77 | 1.76 |

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 17 , Study no: 35

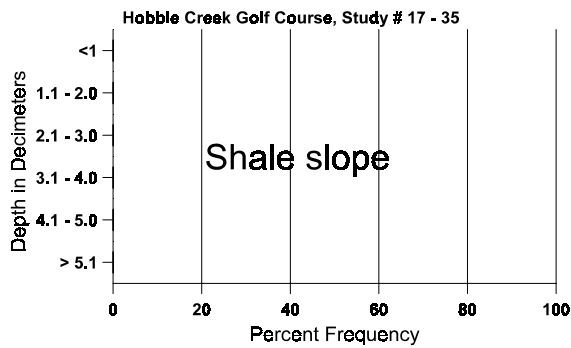
| T y p e | Species | Strip Frequency | Average Cover % |
|------------------|-----------------------|--------------------|--------------------|
| | | '97 | '97 |
| B | Amelanchier alnifolia | 5 | .31 |
| B | Gutierrezia sarothrae | 15 | 1.00 |
| B | Quercus gambelii | 70 | 11.08 |
| Total for Browse | | 90 | 12.40 |

BASIC COVER --

Herd unit 17 , Study no: 35

| Cover Type | Nested Frequency | Average Cover % | | |
|-------------|---------------------|-----------------|-------|-------|
| | | '83 | '89 | '97 |
| Vegetation | 341 | .25 | 8.50 | 33.93 |
| Rock | 332 | 39.50 | 46.75 | 36.16 |
| Pavement | 128 | 8.00 | 8.75 | 2.91 |
| Litter | 366 | 46.50 | 30.00 | 31.53 |
| Cryptogams | - | 1.00 | 0 | 0 |
| Bare Ground | 108 | 4.75 | 6.00 | 2.54 |

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 17 , Study no: 35

| Type | Quadrat Frequency |
|------|-------------------|
| | '97 |
| Deer | 1 |

BROWSE CHARACTERISTICS --

Herd unit 17 , Study no: 35

| A Y G R E | | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | | Total |
|--|----|----------------------------|----|----|------------------|---|---|-------------------|---|---|----------------|-----|------|------|--------------------|--------------------------------|----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | |
| Amelanchier alnifolia | | | | | | | | | | | | | | | | | | |
| S | 83 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 | |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| Y | 83 | - | 5 | 29 | - | - | - | - | - | - | 5 | 20 | 9 | - | 1133 | | 34 | |
| | 89 | 10 | 10 | 2 | 2 | 2 | - | - | - | - | 22 | 2 | 2 | - | 866 | | 26 | |
| | 97 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | | 3 | |
| M | 83 | - | - | 14 | - | - | - | - | - | - | - | 2 | 12 | - | 466 | 24 | 14 | |
| | 89 | 4 | 11 | 10 | 2 | 3 | - | - | - | - | 20 | 2 | 7 | 1 | 1000 | 16 | 10 | |
| | 97 | 5 | 1 | - | - | - | - | - | - | - | 6 | - | - | - | 120 | 28 | 28 | |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| | 89 | 4 | 2 | 1 | - | - | - | - | - | - | 3 | - | 1 | 3 | 233 | | 7 | |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | | '83 | | | 10% | | | 90% | | | +24% | | | | | | | |
| | | '89 | | | 44% | | | 21% | | | -91% | | | | | | | |
| | | '97 | | | 11% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '83 | 1599 | Dec: | 0% | | | |
| | | | | | | | | | | | | '89 | 2099 | | 11% | | | |
| | | | | | | | | | | | | '97 | 180 | | 0% | | | |

| A G E | Y R | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | | Total |
|--|--------|----------------------------|---|---|-----------|---|---|------------|---|---|-------------|-----|-----|------|--------------------|--------------------------------|----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | |
| Cercocarpus montanus | | | | | | | | | | | | | | | | | | |
| S | 83 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 | |
| | 89 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 | |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| Y | 83 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 | | 2 | |
| | 89 | 7 | - | - | - | - | - | - | - | - | 7 | - | - | - | 233 | | 7 | |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| M | 83 | - | 4 | - | - | - | - | - | 1 | - | 5 | - | - | - | 166 | 67 | 63 | 5 |
| | 89 | - | 1 | - | - | 2 | - | 2 | - | - | 5 | - | - | - | 166 | 87 | 94 | 5 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| D | 83 | - | - | 1 | - | - | - | - | - | - | - | - | 1 | - | 33 | | 1 | |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| % Plants Showing | | Moderate Use | | | Heavy Use | | | Poor Vigor | | | %Change | | | | | | | |
| '83 | | 50% | | | 13% | | | 13% | | | +34% | | | | | | | |
| '89 | | 25% | | | 00% | | | 00% | | | | | | | | | | |
| '97 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '83 | 265 | Dec: | 12% | | | |
| | | | | | | | | | | | | '89 | 399 | | 0% | | | |
| | | | | | | | | | | | | '97 | 0 | | 0% | | | |
| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | | |
| Y | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| | 97 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | 1 | |
| M | 83 | 12 | - | - | - | - | - | - | - | - | 12 | - | - | - | 400 | 15 | 13 | 12 |
| | 89 | 14 | - | - | - | - | - | - | - | - | 14 | - | - | - | 466 | 11 | 15 | 14 |
| | 97 | 34 | - | - | - | - | - | - | - | - | 34 | - | - | - | 680 | 10 | 17 | 34 |
| % Plants Showing | | Moderate Use | | | Heavy Use | | | Poor Vigor | | | %Change | | | | | | | |
| '83 | | 00% | | | 00% | | | 00% | | | +14% | | | | | | | |
| '89 | | 00% | | | 00% | | | 00% | | | +33% | | | | | | | |
| '97 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '83 | 400 | Dec: | - | | | |
| | | | | | | | | | | | | '89 | 466 | | - | | | |
| | | | | | | | | | | | | '97 | 700 | | - | | | |

| A G E | Y R | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total |
|--|--------|----------------------------|----|---|------------------|---|---|-------------------|---|---|----------------|-----|------|------|--------------------|--------------------------------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | |
| Quercus gambelii | | | | | | | | | | | | | | | | | |
| S | 83 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 | | 2 |
| | 89 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 |
| | 97 | 13 | - | - | - | - | - | - | - | - | 13 | - | - | - | 260 | | 13 |
| Y | 83 | 2 | 30 | - | - | - | - | - | - | - | 32 | - | - | - | 1066 | | 32 |
| | 89 | 29 | 2 | - | 6 | - | - | - | - | - | 35 | - | 2 | - | 1233 | | 37 |
| | 97 | 315 | 60 | - | - | - | - | - | - | - | 375 | - | - | - | 7500 | | 375 |
| M | 83 | - | 14 | 1 | - | - | - | - | - | - | 15 | - | - | - | 500 | 58 23 | 15 |
| | 89 | 32 | 6 | - | 1 | - | - | - | - | - | 37 | 1 | 1 | - | 1300 | 30 20 | 39 |
| | 97 | 3 | 1 | - | - | - | - | - | - | - | 4 | - | - | - | 80 | 28 23 | 4 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | 89 | 5 | 5 | - | - | - | - | - | - | - | 8 | - | 1 | 1 | 333 | | 10 |
| | 97 | 15 | 1 | - | - | - | - | - | - | - | 14 | - | - | 2 | 320 | | 16 |
| X | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 400 | | 20 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '83 | | 94% | | | 02% | | | 00% | | | +45% | | | | | | |
| '89 | | 15% | | | 00% | | | 06% | | | +64% | | | | | | |
| '97 | | 16% | | | 00% | | | .50% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '83 | 1566 | Dec: | 0% | | |
| | | | | | | | | | | | | '89 | 2866 | | 12% | | |
| | | | | | | | | | | | | '97 | 7900 | | 4% | | |